

The Australian range of *Fimbria* is from Queensland around to Northwest Australia, possibly as far south as Broome. The genus is confined to tropical rather than temperate Australian waters. It has not yet been recorded from New South Wales or southern Australia. The eastern Australian species is *F. fimbriata* which extends throughout most of the length of the Great Barrier Reef but possibly ranges into Northern Territorial waters. The western Australian species is *F. soverbii* which is found as far south as Broome.

According to Iredale's map of Australian marine provinces (1939, p. 220), all the Solanderian and at least a part of the Dampierian would encompass the Australian distribution of *Fimbria*.

From the above account it is apparent that reasonably detailed and accurate information, except for Australian waters, is lacking. In order to understand the origin and distribution of marine faunas, it is necessary to do much more thorough and careful collecting than has been done in the past.

ACKNOWLEDGMENTS

The information given by Dr. Joyce Allan (Australian Museum, Sydney) on the distribution of *Fimbria* in Australian waters has been most helpful. Dr. L. R. Cox, of the British Museum (Natural History), searched for the types of some of A. Adams's species. Additional data on the distribution of *Fimbria* were supplied by Dr. A. Myra Keen, of Stanford University, Dr. Leo G. Hertlein, of the California Academy of Sciences, and William J. Clench, of the Museum of Comparative Zoology. Dr. J. P. E.

Morrison, of the U. S. National Museum, lent his notes on descriptions of localities at Bikini. The writer is greatly indebted to these persons for giving so much essential data for this paper.

REFERENCES

- COTTON, B. C., and GODFREY, F. K. *The molluscs of South Australia, Part I. The Pelecypoda*, 314 pp., 340 figs. Adelaide, 1938.
- CUVIER, G. L. C. F. D. *Le règne animal*, etc., 1: 540 pp., 1816; 2: 532 pp., 1817; 3: 653 pp., 1817; 4: 255 pp., 1817. Paris.
- DALL, W. H., BARTSCH, P., and REHDER, H. A. *A manual of the Recent and fossil marine pelecypod mollusks of the Hawaiian Islands*. Bernice P. Bishop Mus. Bull. 153: 233 pp., 28 figs., 58 pls., 1938.
- HEMMING, F. *Opinions and declarations rendered by the International Commission on Zoological Nomenclature* 3 (pt. 4): 37-52. [Opinion 185: Suppression of Bohadsch (J. B.), *De quibusdam animalibus marinis*, 1761, and of the German translation thereof published by Leske (N. G.) in 1776.]
- IREDALE, TOM. *Great Barrier Reef Expedition, 1928-29*. Scientific Reports 5 (6), Mollusca Part I: 209-425, 7 pls. British Museum (Natural History), 1939.
- LAMY, E. *Révision des Lucinacea vivants du Muséum d'Histoire Naturelle de Paris: Journ. de Conch.* 65 (3) 233-318. 1921.
- LINNÉ, KARL VON. *Systema naturae*, ed. 10, 1: 824 pp. 1758.
- MEGERLE VON MÜHLFELD, JOHANN KARL. *Entwurf eines neuen System's der Schalthiergehäuse: Mag. Ges. Naturf. freunde Berlin* 5 (fünfter jahrgang) (no. 1, art. 2): 38-72. 1811.
- RÖDING, P. F. *Museum Boltenianum*, etc.: pt. 2, 199 pp. Hamburg, 1798.
- SCHUMACHER, C. F. *Essai d'un nouveau système*, etc.: 287 pp., 22 pls. Copenhagen, 1817.

ZOOLOGY.—*A preliminary list of the cleidogonid millipeds, with descriptions of a new genus from Guatemala and a new species from Virginia.*¹ RICHARD L. HOFFMAN (Communicated by E. A. CHAPIN.)

While recently sorting and rearranging material in the diplopod collection of the U. S. National Museum, I discovered a vial of specimens taken in western Guatemala and labeled "*Cleidogona* n. sp." by Dr. O. F. Cook. Examination of these millipeds revealed characters that preclude their reference to *Cleidogona* or any other presently known group of the Cleidogonidae. A new genus is herewith proposed for the species, and the opportunity is taken for the in-

clusion of information on the cleidogonid genera recognized by me, preliminary to a projected revision of the family.

The family Cleidogonidae has, despite admirable descriptions of its members by Cook and Collins (1895), received much faulty treatment at the hands of European workers. Attems (1926) included *Cleidogona* and *Pseudotremia* in the family Pseudocleididae, a much later named based on his genus *Pseudoclis* from the Palearctic region; in this he has been followed by R. V. Chamberlin in several recent papers. The name

¹ Received November 1, 1949.

Cleidogonidae has three years priority, and Pseudocleididae will of course fall as a synonym if only one family is involved. However, for the present I prefer to regard Pseudocleididae as a valid family for the 28-segmented European forms. The Cleidogonidae is regarded as an essentially Nearctic group.

A number of Mexican species are known, again providing a reflection of the numerous faunal affinities of the Mexican Plateau with the Appalachian region of eastern United States. The relationships of these forms are clearly with the cleidogonids of eastern North America; despite this, however, Verhoeff (1926) proposed a new family for the reception of one of them.

It is felt that a brief summary of the characters of the family as currently restricted, a key to the genera, and list of known species, may be useful to other workers, pending completion of the more detailed account.

Family CLEIDOGONIDAE

Cleidogonidae Cook, *Brandtia*, 1896: 8 (*Cleidogona*, *Bactropus*, *Pseudotremia*). May 18.
 Pseudocleididae Attems, in Kükenthal and Krumbach, *Handbuch der Zoologie* 4: 170. 1926 (in part—*Cleidogona* and *Pseudotremia* placed in Pseudocleididae Attems, 1899).
 Mexiceumidae Verhoeff, *Zool. Anz.* 68: 110. 1926.

Chordeumoidea with the following characteristics:

Adults with 30 segments, body moderately elongate, usually robust, cylindrical, subfusiform.

Head larger and wider than first segment, latter fitting into a concavity on the back of the head.

Eyes well developed as a rule, ocelli usually numerous, arranged in definite triangular or sub-triangular patches.

Antennae remote at base, long and very slender, third joint much the longest, eighth with four olfactory cones.

Gnathochilarium with stipes separate, cardo small; mentum entire, trapeziform, large; pronotum evident, triangular, between the bases of the lingual lamellae; latter long, distinct.

Segments nearly cylindrical, never laterally carinate but with low shoulders in *Pseudotremia*, also smooth except in that genus. Dorsum with six bristles on each segment. Repugnatorial pores absent.

Ninth legs of males reduced, the basal joints usually enlarged; usually 5-jointed with a small terminal claw. Male legs anterior of gonopods not modified.

Male gonopods large, heavily chitinized, composed as a rule of two pairs of upright pieces, the caudal pair usually the smaller and attached to the base of the cephalic. Female gonopods in the form of two subrectangular elements placed in a sclerotized receptacular portion between the second and third pairs of legs.

ARTIFICIAL KEY TO THE GENERA OF CLEIDOGONIDAE

1. Ninth male legs embracing a bifid plate, dorsum granular, gonopods lacking posterior elements, and anterior pair divided into 2 subequal parts..... *Pseudotremia* Cope
 Ninth male legs not embracing a bifid plate, dorsum smooth, gonopods with prominent posterior elements, anterior pair not divided as above..... 2
2. Ninth male legs similar to others, e. g., basal joints not especially enlarged, distal not reduced..... 3
 Ninth male legs dissimilar to others, basal joints enlarged and distal ones reduced.... 4
3. Ocelli unpigmented and reduced in number to 14, ninth male legs 6-jointed
Cavota Chamberlin
 Ocelli pigmented and not reduced (more than 20), ninth male legs 5-jointed
Tiganogona Chamberlin
4. Gonopods with long tubular processes at distal end, including a definite solenomerite; ninth male legs with third joint (first tarsal) much longer than last two; no terminal claw
Solaenogona, n. gen.
 Gonopods not as above; ninth male legs with third joint always very small and short; a terminal claw present..... 5
5. First joint of ninth male leg with a large chitinous process extending ventrad between anterior gonopods; ninth leg 4-jointed
Rhabdarona Chamberlin and Mulaik
 First joint of ninth male leg without process as described above; leg 2-, 3-, or 5-jointed... 6
6. Ninth male leg 2-jointed... *Mexiceuma* Verhoeff
 Ninth male leg 3- or 5-jointed..... 7
7. Ninth male legs 3-jointed; ocelli 4-7, unpigmented..... *Dearolfia* Loomis
 Ninth male legs 5-jointed; ocelli more than 20, pigmented..... *Cleidogona* Cook and Collins

Genus *Cleidogona* Cook and Collins

Cleidogona Cook and Collins, *Ann. New York Acad. Sci.* 9: 41. 1895 (genotype, *C. major*, by original designation, p. 48).

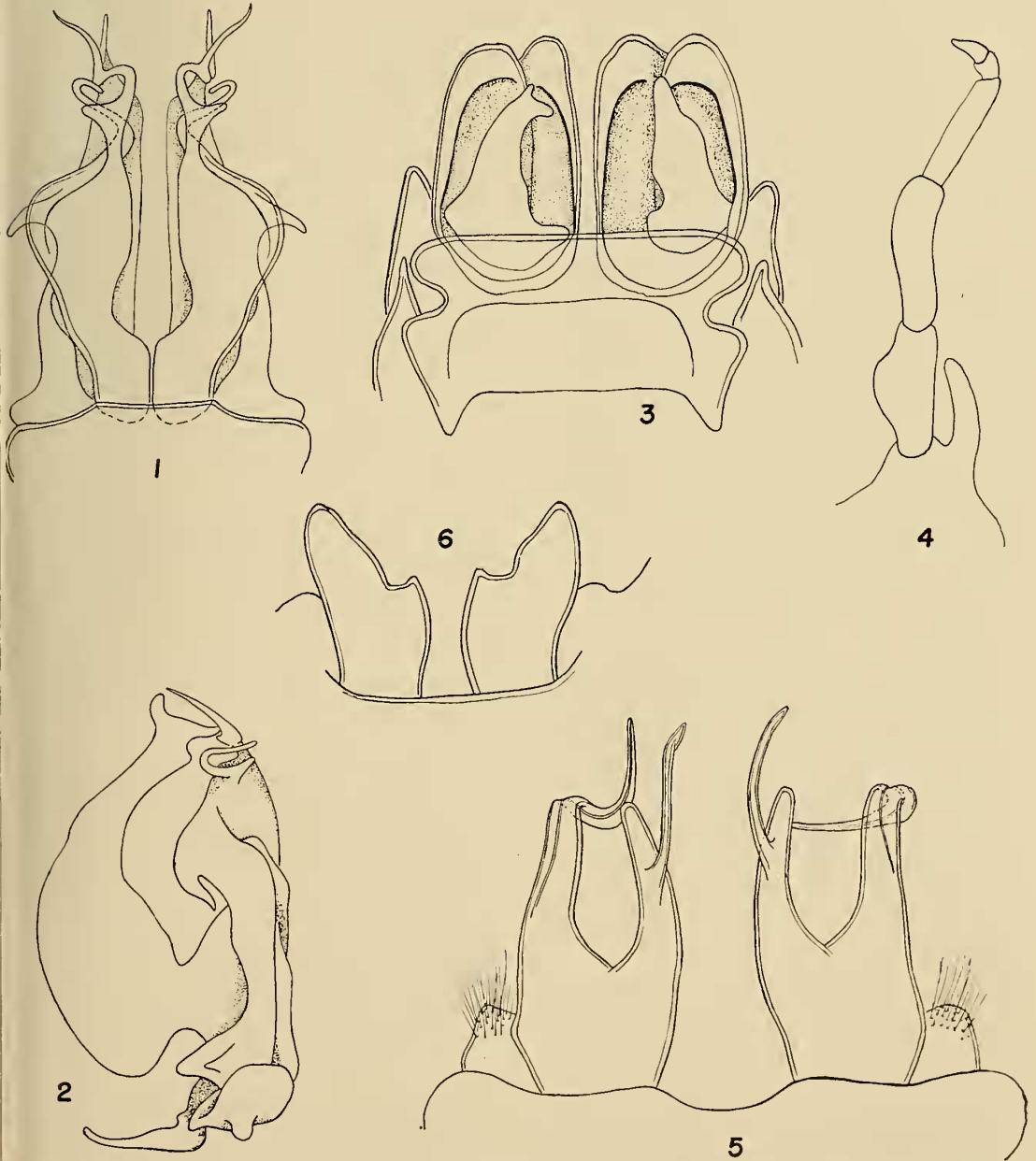
Range.—Eastern United States from Pennsylvania and Maryland south and west to Florida, Mexico, and Guatemala.

Species.—*C. atoyaca* Chamberlin, *caesioannulata* (Wood), *ceibana* Chamberlin, *celerita* Williams and Hefner, *exaspera* Williams and Hefner, *forceps* Cook and Collins, *laminata* Cook and Collins, *major* Cook and Collins, *mexicana* (Humbert and Saussure), *mississippiana* Chamberlin, *godmani* Pocock, *nueva nueva* Chamberlin, *nueva*

michoacana Chamberlin, *rafaela* Chamberlin, *stolli* Pocock, *zempoala* Chamberlin.

Genus *Cavota* Chamberlin

Cavota Chamberlin, Bull. Univ. Utah 33 (4): 8, 1942 (generotype, *C. crucis*, by original designation).



FIGS. 1-6.—1, Cephalic view of male gonopods of *Solacnogona guatemalana*, n. sp., from topoparatype; 2, lateral view of same; 3, caudal view of female genitalia of *S. guatemalana*, slightly larger scale than Figs. 1 and 2; 4, ninth male leg of *S. guatemalana*, cephalic aspect; 5, cephalic view of male gonopods of *Pseudotremia hobbsi*, n. sp., from topoparatype; 6, bifid laminae of *P. hobbsi*, caudal view.

Range.—Veracruz.

Species.—*C. crucis* Chamberlin.

Genus **Dearolfia** Loomis

Dearolfia Loomis, Bull. Mus. Comp. Zool. 86 (4): 177. 1939 (generotype, *D. lusciosa*, by original designation).

Range.—West Virginia.

Species.—*D. lusciosa* Loomis.

Genus **Mexiceuma** Verhoeff

Mexiceuma Verhoeff, Zool. Anz. 68: 112. 1926 (generotype, *M. maculata*, by original designation).

Range.—Distrito Federal, Mexico.

Species.—*M. maculata* Verhoeff.

Genus **Pseudotremia** Cope

Pseudotremia Cope, Proc. Amer. Philos. Soc. 11: 179. 1869 (generotype, *P. cavernarum*, by original designation).

Range.—Appalachian Mountains from Georgia north to West Virginia, west in the Central Lowlands to Indiana.

Species.—*P. carterensis* Packard, *cavernarum* Cope, *eburnea* Loomis, *fulgida* Loomis, *hobbsi* n. sp., *nodosa* Loomis, *princeps* Loomis, *simulans* Loomis, *sodalis* Loomis, *sublevis* Loomis, *tuberculata* Loomis, *valga* Loomis.

Pseudotremia hobbsi, n. sp.

Figs. 5, 6

Type specimens.—Holotype, allotype, and two male paratypes, U.S.N.M. no. 1783; collected in Chestnut Ridge Cave, 2 miles north of Clifton Forge, Allegheny County, Va.; March 31, 1947, by Richard L. Hoffman. Numerous paratypes of both sexes in my personal collection.

Diagnosis.—Maximum size, 31 mm; body completely pigmented; eyes well developed, of about 19 ocelli; tergites moderately tuberculate. Male gonopods characteristic in the presence of a slender upright styliform process on the cephalic surface of the mesial division.

Description.—Body fusiform, widest at the sixth and seventh segments of the male, tapering abruptly cephalad; head conspicuously wider than the first thoracic segment; segments becoming narrower posterior to the seventh, the last three noticeably shorter and narrower. Segments only moderately tuberculate dorsally, the most pronounced sculpture affecting the metatergites of the posterior half of the body. Lateral striae small, about 18 on the side of the seventh seg-

ment, only one or two on the last three segments. Largest specimen, a male, 31 mm long.

Eyes well developed, roughly triangular in shape. Ocelli about 19, a maximum of 6 in the longest row, with the number in other rows variable. Ocelli pigmented.

Antennae long (5 mm) and slender; rather hirsute, particularly distally. In order of decrease in length, the articles arranged as follows: 3, 5, 4, 2, 6, 1, 7. Distal portion of each article except the last expanded.

Collum semicircular, slightly concave along posterior margin, elevated laterally into a small keel. Surface smooth, without a median ridge. Posterior margin with two small tubercles on each side of median line.

Last three segments smooth, slightly tuberculate in one specimen; metatergites of penultimate and antepenultimate segments bearing six setae. Anal segment truncate distally, bearing two lateral and six terminal hairs; two of the latter arise from papillae. Anal segment slightly longer than broad in dorsal aspect, subequal in length to the two preceding segments combined; slightly emarginate laterally.

Male gonopods with two major divisions as typical in the genus. The outer or lateral division is a long slender process, directed caudad and then mesiad. The inner or mesial division is much shorter and nearly straight; from its anterodistal surface projects a slender, falcate styliform branch as shown in the figure. This branch is directed proximad and exceeds the mesial division in length. In one specimen this terminal element was distally bifid.

The posterior gonopods, or bifid laminae, are relatively large and completely separated, with large mesial shoulders.

Ninth leg of male 4-jointed, basal joint shorter than the combined length of distal two. Proximal end of second joint abruptly contracted. Third joint trapezoidal and half the length of the terminal one; latter conical and noticeably constricted at midlength, provided with a sharp curved terminal claw. Legs sparingly hirsute.

Color dark brown dorsally, fading on the sides; venter and basal two-thirds of legs white, distal third of legs brown. Antennae grayish brown. Each metatergite with two large cephalolateral oblong light brown spots, margined mesially and caudally by the darker brown of the dorsum.

Range.—Headwaters of the James River in central western Virginia, known at present from

11 localities in Alleghany and Bath Counties. The relationships of this species with *P. simulans* Loomis, from the upper Potomac drainage in Pendleton County, W. Va., are worthy of investigation. Further collections in the 60-mile hiatus between the ranges of the two should be of considerable interest, in possibly revealing intergradation.

The present species is the first milliped I recognized as undescribed, and partly for this reason I take considerable pleasure in naming it for Dr. Horton H. Hobbs, Jr., except for whom my early interest in millipedes could never have become productive.

Genus *Rhabdarona* Chamberlin and Mulaik

Rhabdarona Chamberlin and Mulaik, Journ. New York Ent. Soc. 49: 60. 1941 (generotype, *R. bacillipus*, by original designation).

Range.—Texas.

Species.—*R. bacillipus* Chamberlin and Mulaik.

Solaenogona, n. gen.

Generotype.—*Solaenogona guatemalana*, new species.

A genus of the Cleidogonidae externally resembling *Cleidogona* but distinguished by the secondary sexual modifications of both the male and female.

Male gonopods prominent, large, resembling those of *Cleidogona* but the anterior pair with long slender processes distally, one of these modified as a solenomerite. Posterior gonopods very large, distally bifid and finely setose.

Ninth legs of male 5-jointed, characteristic in the great length of the first tarsal joint (as long as tibia) and absence of terminal claw. Sternite of ninth legs produced laterally into a long slender lobe.

Female gonopods enclosed in a nearly rectangular basal part, the distal elements (valves) with their included groove facing caudad and protected by an irregularly shaped shield not found in other genera. Upper surfaces of valves not spinose or denticulate as in *Cleidogona*.

Solaenogona guatemalana, n. sp.

Figs. 1-4

Type specimens.—Male holotype, female allotype, and 10 topoparatypes of both sexes, U.S.N.M. no. 1883; collected between Santa Cruz

Quiche and Totonicapam, Guatemala, May 16, 1906, by Dr. O. F. Cook.

Diagnosis.—With the characters of the genus, specifically characterized by the configuration of the genitalia.

Description.—Length of holotype, 22, width, 2.1 mm; length of allotype, 21, width, 2.0 mm.

Body like that of *Cleidogona*, subfusiform, circular, completely smooth.

Ocelli in a triangular patch, in 7 rows; counting from the anterior corner downwards arranged as follows: 1, 2, 3, 4, 5, 6, 7 = 28.

Antennae long and slender, the articles arranged in descending order of length as follows: 3, 5, 4, 2, 7, 6, 1. Third article twice as long as 4th or 2nd, half again as long as fifth. Sixth article somewhat clavate.

Male gonopods composed of two pairs of elements as in *Cleidogona*. The anterior members are upright, broad, and somewhat flattened, each becoming differentiated distally into two subdivisions both of which terminate in long slender wavy processes; the extremity of the caudal subdivision modified as a solenomerite. Seen in cephalic aspect, the gonopods clearly show the secondary division of the anterior pair (Fig. 1). The posterior gonopods, articulated to the posterior portion of the anterior, are very large, subpyriform plates, tapering distad and becoming terminally bifid.

Ninth male leg 5-jointed, the basal joint (coxo-femur) short, slightly lobed at midlength; tibial joint longer, gradually expanded distally and somewhat bowed. First tarsal joint long, nearly length of tibia, and nearly twice as long as distal two tarsi. Latter very small, without terminal claw. Sternite laterad of insertion of leg produced into a long slender lobe (Fig. 4).

Female gonopods inclosed between the 2nd and 3rd pairs of legs, the sternites of which are produced caudad and cephalad respectively to provide housing and protection. The basal receptacular portion is composed of a broad sublyriform plate facing the 3rd leg pair, and lateral prolongations of it extending cephalad. Structure of valves complicated, giving the impression of two hollow containers opened on one side to reveal a duplicate structure inside, as illustrated (probably study of serial sections will be necessary for a correct interpretation of this structure). The rather large apertures are partially covered by irregular, separate, shieldlike pieces.

Color pattern as follows: prozonites dark olive-

green and metazonites across back nearly black. A narrow white median line extending entire length of dorsum. On each side of the median line is a small, indistinct light dot, laterad of this is another, larger, and clearly defined white spot. Sides of metazonites brown, from the ventral side extending nearly up to the dorsolateral spot is a long, subtriangular tan mark. Legs basally white, terminal third becoming brownish. Head uniformly dark, lacking the transverse clypeal black stripe and three light areas typical of *Cleidogona*.

Remarks.—This is, to my knowledge, the southernmost known representative of the family. For both geographical and morphological reasons I am inclined to regard it as representative of

the ancestral stock of *Cleidogona* and other American genera with the possible exception of *Pseudotremia*. Since only two other cleidogonids have been described from tropical America south of Mexico, it is very likely that a rich and varied fauna remains to be discovered, and that its members may throw much light on problems of relationships and evolution in the group.

Genus *Tiganogona* Chamberlin

Tiganogona Chamberlin, Ent. News 39 (5): 154. 1928 (generotype, *T. brownae*, by original designation).

Range.—Missouri.

Species.—*T. brownae* Chamberlin.

MAMMALOGY.—*A new race of badger (Taxidea) from Kansas.*¹ VIOLA S. SCHANTZ, U. S. Fish and Wildlife Service. (Communicated by HARTLEY H. T. JACKSON.)

Continued studies of the North American badgers reveal a new race in Kansas, where they had previously been referred to *Taxidea taxus taxus* by J. D. Black (30th Biennial Report of the Kansas State Board of Agriculture to the Legislature of the State for the years 1935 and 1936: 162, 163, 1937). I wish to express appreciation to the Kansas Museum of Natural History for the courtesy of lending me their Kansas badger specimens, which were an invaluable asset in formulating the description of this new race. The type specimen was originally in the C. Hart Merriam collection, which is now deposited in the U. S. National Museum, and I therefore name it for Doctor Merriam. It is recognized by the following description:

Taxidea taxus merriami, n. subsp.

Type.—U.S.N.M. no. 188609 (no. ³⁰⁷⁴/₃₇₁₄ Merriam collection). Old female; skin and skull; collected at Banner, Trego County, Kansas; November 16, 1886, by A. B. Baker.

Distribution.—Kansas, approximately between longitude 97° and 101°N., except for a dip south to Hill City (22 miles east), Graham County. Carolinian biota of the Upper Austral Life Zone.

Diagnostic characters.—Individuals of this subspecies have a beige, black, and gray color mixture over the dorsal area, with the

beige and black colors predominating. Specimens average smaller than *T. t. iowae* or *montana* and lack the light cinnamon-drab color of *iowae* and the sombrero of *montana*.

Color.—TYPE: Winter pelage. Facial area, including eyes and forehead (except median white line), and preauricular patches beaver brown; irregular white markings under and behind the eyes confluent with cream throat; white median line extends from near tip of nose over the forehead to the shoulder; general dorsal area beige (Maerz and Paul, *A dictionary of color*. 1930), black, and gray mixture, with the beige and black colors predominating. The base of the underfur and guard hair is beige; then the guard hairs have a subapical band of black tipped with gray. The longer guard hairs on the sides of the body have a basal coloring of ivory, then a narrow band of buff, followed by a subapical band of black and tipped with a wider band of gray than on the dorsal area; chin and spot at base of median tuft of gular vibrissae brownish, ears dark brown edged with white; fore and hind limbs dark mummy brown (Ridgway); upper side of tail cinnamon-buff colored with a subapical band of dark brown tipped with gray, under side of tail predominantly cinnamon-buff; tail terminates in a dark-brown tuft.

Skull.—TYPE: Averages smaller than those of its closely allied races *iowae* and *montana*.

Measurements.—TYPE: No skin measure-

¹ Received November 23, 1949.